ENVIRONMENTAL ENHANCEMENT DERIVED FROM MILITARY TRAINING ACTIVITIES AT CAMP SHELBY TRAINING SITE, MISSISSIPPI

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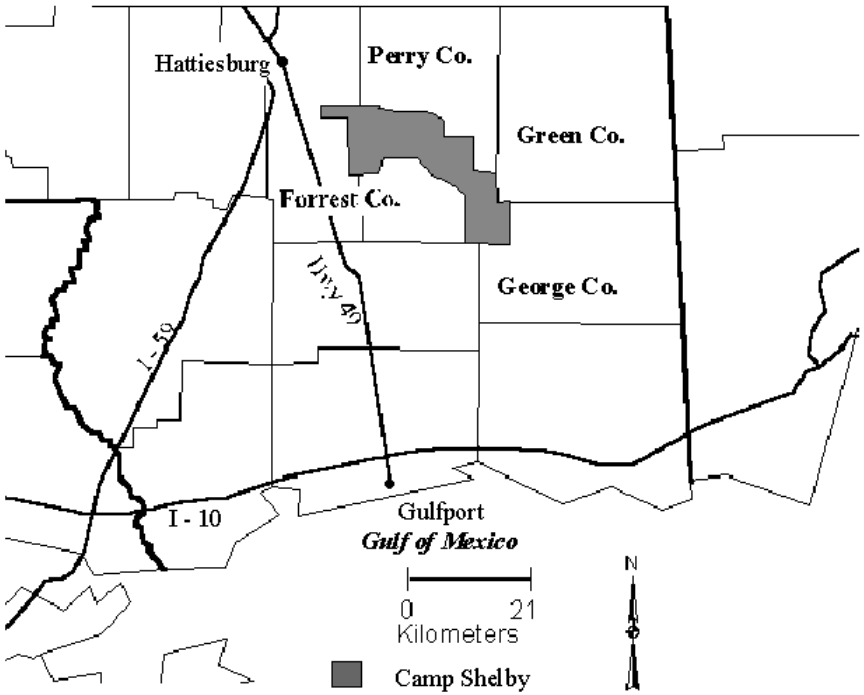
Acknowledgements

- **Mississippi Army National Guard**
- **Camp Shelby GIS, Environmental, and Training Offices**
- **United States Forest Service personnel, DeSoto National Forest**
- **USM Departments of Geology and Biological Sciences faculty and students**

Location


Hattiesburg
Perry Co.
Green Co.
Forrest Co.
George Co.
Hwy 49
I - 59
I - 10
Gulfport
Gulf of Mexico
0
21
Kilometers
N
Camp Shelby

Purpose

- **Describe Pre-settlement Ecosystem**
- **Describe Present Ecosystem**
- **Demonstrate How Training Activities Replicate the Pre-settlement Ecosystem**

The Natural History of the Southern Pine Barrens

“for a 150 miles inland (the land) supported a vast primeval stand of magnificent longleaf yellow, pine. The giant trees stood widely and evenly spaced … creating the appearance of a park. Early travelers remarked upon their ability to ride through these woods at a full gallop in perfect safety.

Others ... compared these forests to the barren wastes of the Sahara - Hence the descriptive term “pine barrens”.”

excerpted from

The Mississippi Gulf Coast,

Charles Sullivan, 1985

Fire Dependent Ecosystem

- **Abundant lightening strikes**
- **Excess fuel**
  - **pine litter**
  - **heart-pine logs**
- **No Fire Breaks**

Post-Settlement Land Use Changes

The primary causes of Land Use Change are due to the eradication of fire because of:

- **Silvaculture**
- **Agriculture**
- **Urbanization**

Flatwoods Ecosystem

- **Herbaceous**
  - **grasses in drier areas**
  - **pitcher plant assemblages in wetter areas**
- **Gopher Tortoise burrows**
  - **gopher tortoise**
  - **snakes**
  - **rodents**

Plants Disappearing from the South Mississippi Landscape

- **Pitcher Plants - *Sarracenia***
- **Fringed Orchids - *Platanthera ciliaris***
- **Pine Lilies - *Lilium catesbaei***
- **Hooker's milkwort - *Polygala hookeri***
- **Tooth-ache Grass - Ctenium spp.**

Endangered, Threatened & Candidate Species

E - Red-cockaded Woodpecker Picoides borealis*

T - Gopher tortoise Gopherus polyphemus

T - Yellow-blotched map turtle - Graptemys favimaculata *

T - Eastern indigo snake, Drymarchon corais couperi *

C - Black pine snake Pituophis melanoleucus ssp. lodingi

C - Camp Shelby burrowing crayfish Fallicambarus gordoni

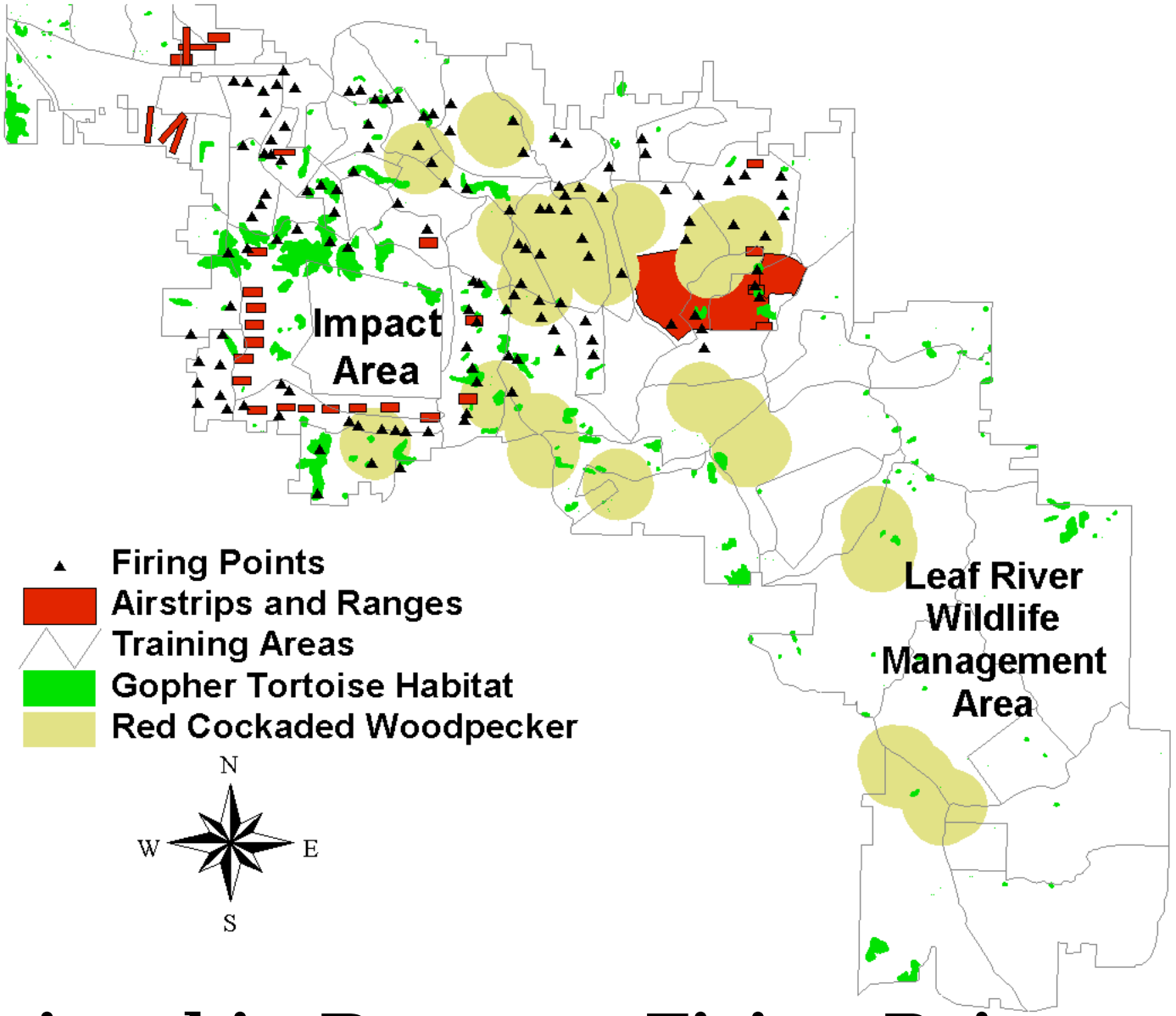
* Habitat present, but no known specimens

Gopher Tortoise Conservation

- **Forest and range management that promotes grassy, open canopy habitat .**
- **In natural longleaf pine-scrub oak stands**
  - **thinning of dense oaks,**
  - **reestablishment of the pine component (to aid in carrying fire), and**
  - **prescribed burning at least every 5-10 years for summer burns.**

Gopher Tortoise Conservation

- **In commercial pine plantations**
  - **low intensity site preparation,**
  - **planting fire tolerant species at wide spacings,**
  - **maximizing edge, and**
  - **burning annually or biennially will benefit tortoise populations.**



Relationship Between Firing Points and T&E's

East Air-to-Ground Pitcher Plant Bog

Small Drain within Safety Fan of East Air-

Sarracenia psittacina - Parot Pitcher plant

Undisturbed Area Adjacent to East Air-to-Ground

- **Plant Community**
  - **Slash Pine**
  - **Ligustrum**
- **Fire Break**
- **Silvaculture**
- **Low Biodiversity**

East Air-To -Ground

***Platanthera ciliaris* - Fringed**

Pitcher Plant Bog Drop Zone

- **Plant Community**
  - **Pitcher Plants**
  - **Toothache Grass**
  - **Lycopods**
  - **Pipeworts**
  - **Panic Grass**
  - **Eupatorium**

Platoon Lane 4

***Lilium catesbaei* - Southern Pine Lily**

Range 43 Alpha

Down Range

Gopher Tortoise Habitat Range 43 Alpha

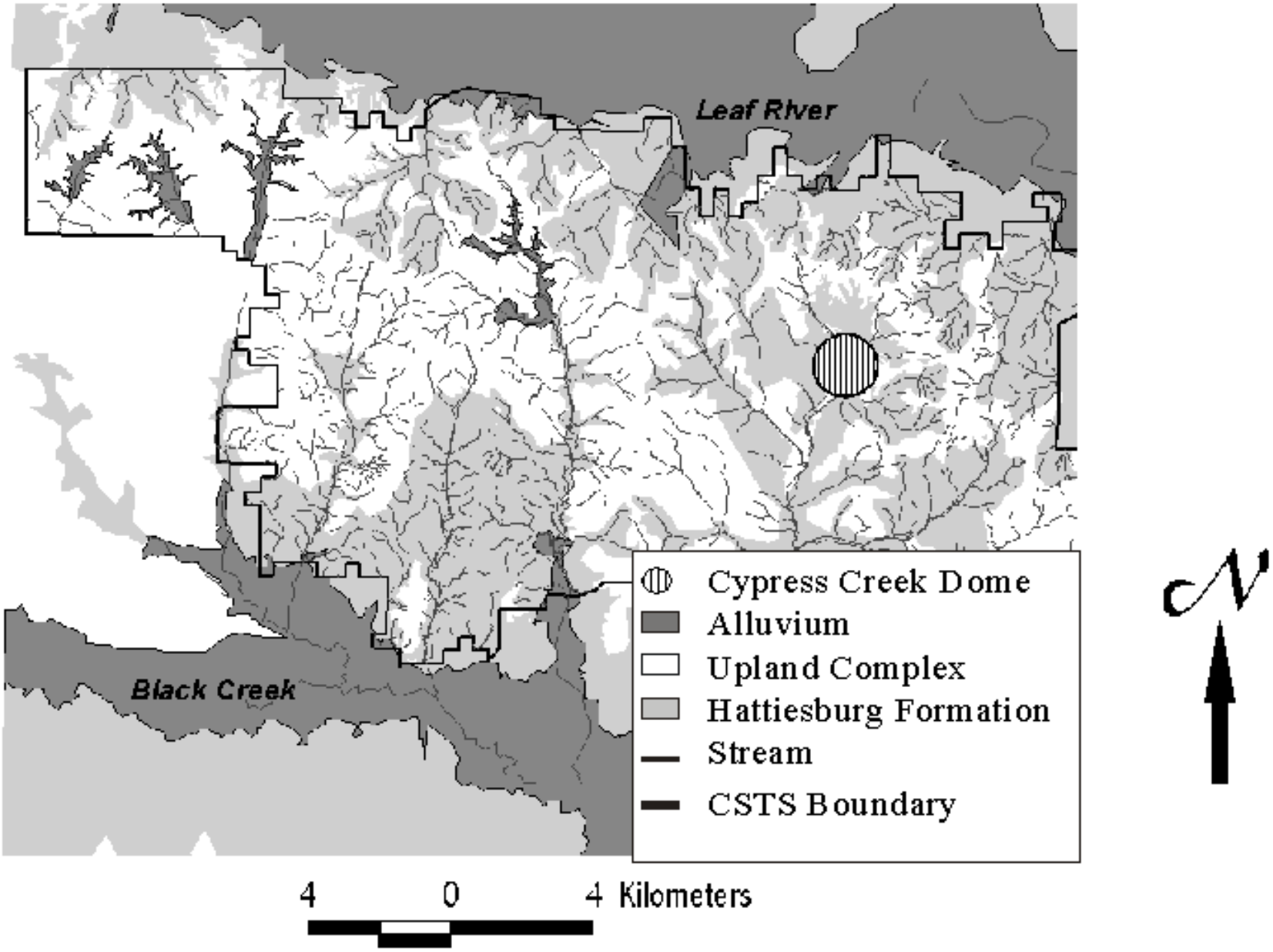
Range 43 Alpha

- **High Biodiversity**
- **Wild Flowers**
- **Pitcher plants, Fringed Orchids**

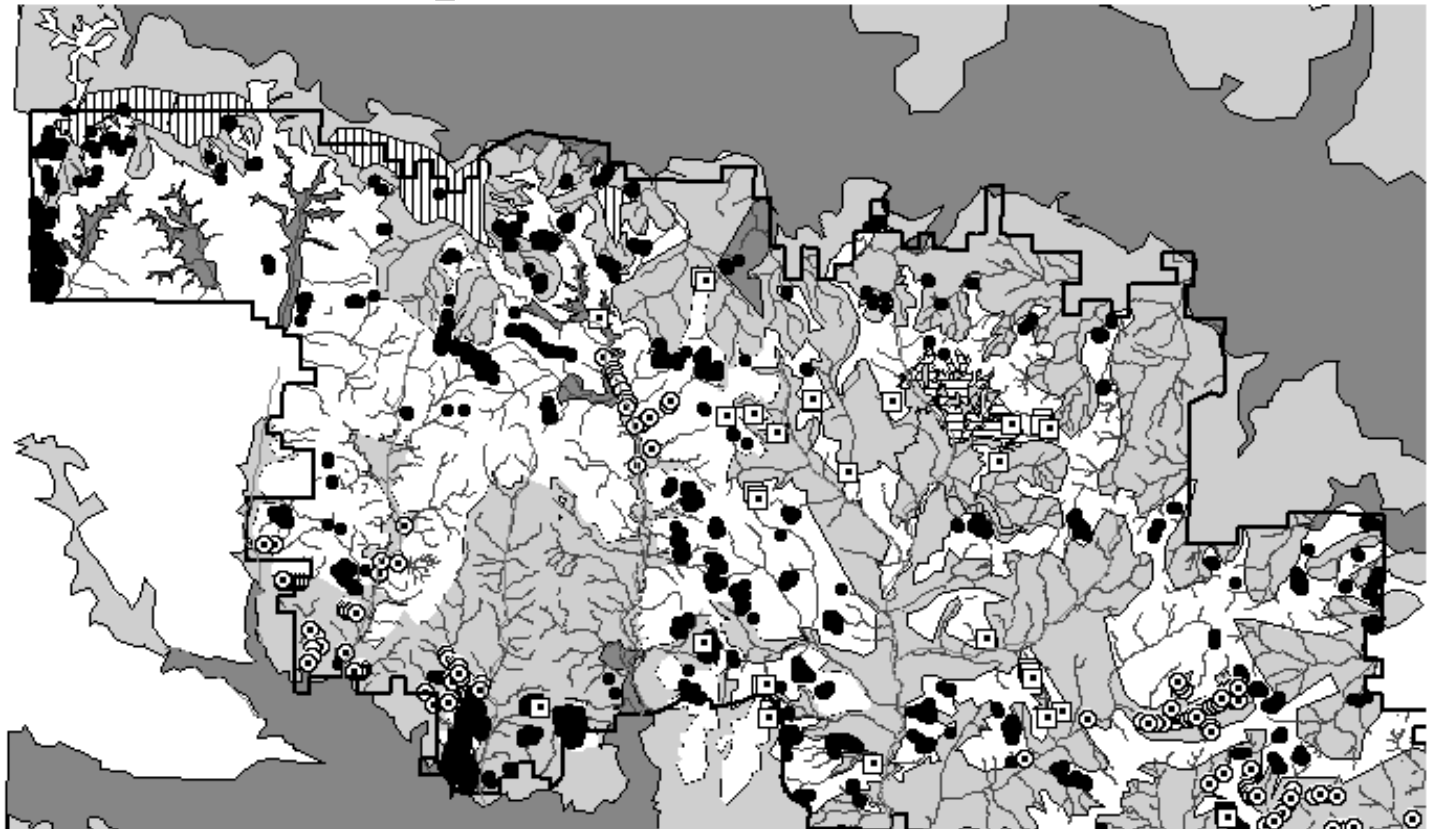
Land Adjacent To Range 43 Not Disturbed by Training

- Low Biodiversity
- No Gopher Tortoise Burrows
- No Rare or Sensitive herbaceous plants

Geologic Map



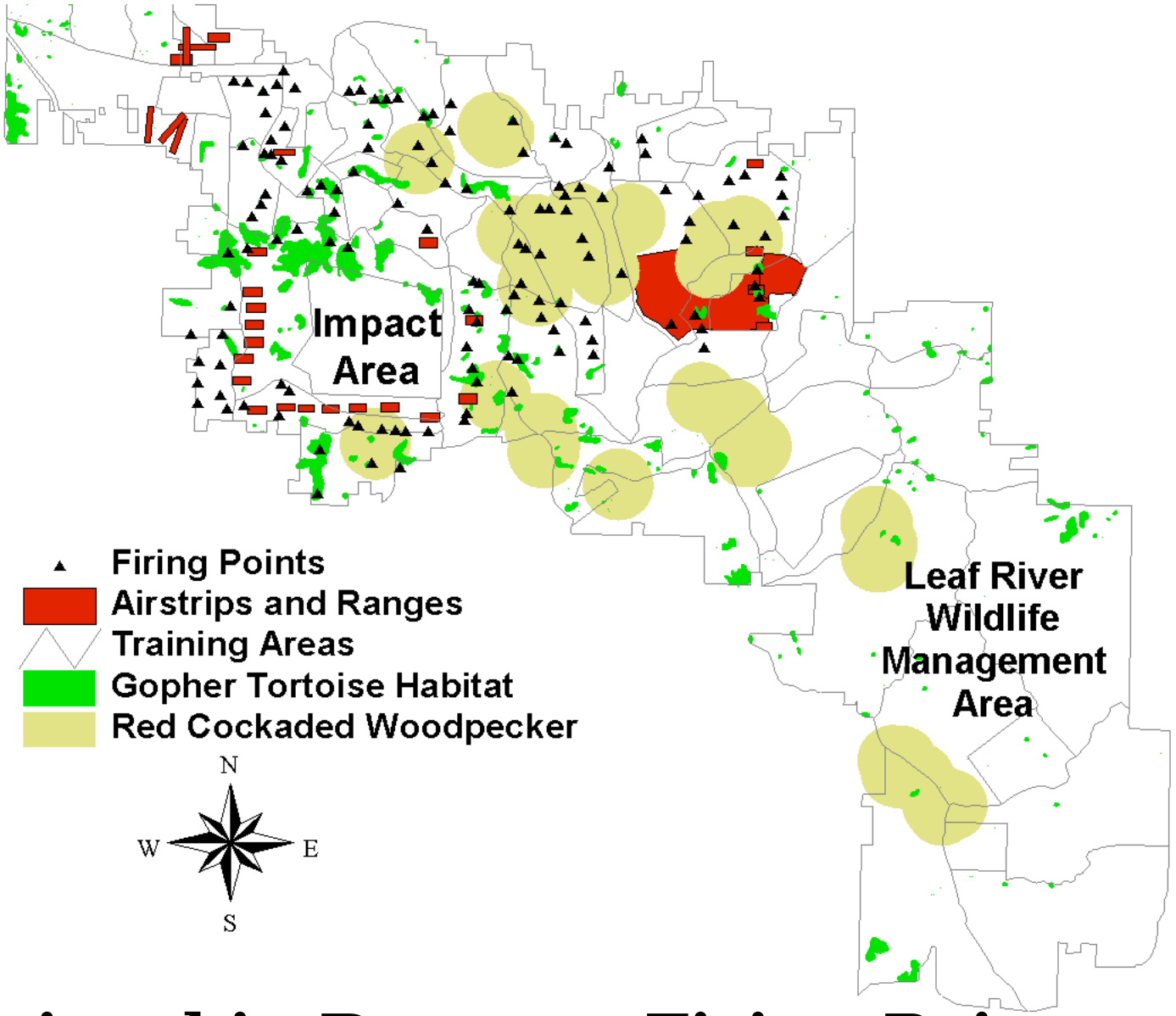
Relationship of T & E's to Surface Stratigra



Gopher Tortoise
Camp Shelby Burrowing Crawfish
Red Cockaded Woodpecker
Louisiana Quillwort
Southern Mixed Mesophytic Assemblage

Undifferentiated Allu
Citronelle Formation
Hattiesburg Formatio

10 0 10 Kilometers



Relationship Between Firing Points and T&E's

Positive Effects of Training Activities

- **Benefits**
  - **Enhancement of pine flatwoods,**
  - **Increased wetland biodiversity**
  - **Increased gopher tortoise habitat**
- **Causes**
  - **Range fires**
  - **Clearing Activites**
- **Why?**
  - **Recreates presettlement ecosystem**

Locations Conducive to Benefits from Training Activities

- **Stratigraphy**
  - **Hattieburg Formation or equivalents composed of fine silts and clays**
- **Topography**
  - **Relatively flat topography**
- **Ecosystem**
  - **Pine Flatwoods and Pitcher Plant Bogs**

Conclusions

- **Training Activities are not by definition always detrimental to the environment.**
- **Clearing of Canopy Vegetation provides habitat for sensitive species such as gopher tortoise and Camp Shelby Burrowing Crayfish.**
- **The Ecosystem Thrives whether clearing due to natural or training Activities**

More Conclusions

- **The ideal locations for training activities to lead to environmental enhancement:**
  - **Hattiesburg Formation derived sediments**
  - **Flat to nearly flat topography**
  - **Limited pine canopy due to frequent fires or land clearing activities**
- **Training Activities are less detrimental to the flatwoods ecosystem than intensive silvaculture and urbanization.**

Questions?